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|-----------------|-------------|----------------------|---------------------|
| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
| 08/976,440 | 11/25/97 | SMITH | D MUR-3494 |

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EXAMINER

MOSKOWITZ, N

ART UNIT

PAPER NUMBER

3662

33

DATE MAILED:

06/06/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

| | | | |
|-----------------|--------------|----------------|--------------|
| Application No. | 08/976440 | Applicant(s) | SMITH, D. B. |
| Examiner | W. Moskowitz | Group Art Unit | 3662 |

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 5/24/00
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-6 and 8-13 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-6 and 8-13 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____
 - ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

Office Action Summary

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1. Applicant's letter received May 24, 2000 has been entered. An action on the pending application follows.
2. The text of those sections of Title 35 U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-6 and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montgomery ('908) or Bockhorst et al when taken with Grossman and Close et al or Arriens.

In determining obviousness, the following factual determinations are made:

- a. first, the scope and content of the prior art;
- b. second, the difference between the prior art and the pending claims;
- c. third, the level of skill of a person of ordinary skill in the art; and,
- d. fourth, whether other objective evidence may be present, which indicates obviousness or nonobviousness. Graham v. John Deere Co., 383 U.S. 17-18, 148 USPQ 459, 466-67(1966). Objective evidence includes a long felt but unmet need for the claimed invention, failure of others to solve the problem addressed by the claimed invention, imitation or copying of the claimed invention, and commercial success due to the features of the invention and not other factors. See e.g., Simmons Fastener Corp. v. Illinois Tool Works, Inc., 739 Fed. 1573, 1574-76, 222 USPQ 744, 745-747 (Fed. Cir. 1984).

Examining the scope and content of the prior art we find the following:

- a) Montgomery and Bockhorst et al disclose a method and apparatus for transmitting data in a borehole. In Montgomery pressure transducer 707 provides an electrical signal representative

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of downhole pressure. Transducer 40 then converts the electrical signals to sonic signals generated along the pipe string. The sonic signals then pass uphole past any solid physical obstruction in the well and are converted by uphole transducer 23 to electrical signals. However, no data is stored uphole. It is noted that this reference also discloses the use of microprocessor (704) downhole.

This system of sonic data transmission is noted to be superior to conventional hardwired and electromagnetic transmission, as they require complex hardware (Montgomery at column 1, lines 67-68 and column 2, lines 1-14).

In Bockhorst et al bore hole pressure data is logged and acoustically transmitted uphole along the drill string. See, especially columns 1, 3 and 4.

b). Grossman teaches:

- i). Downhole pressure data storage (pages 2 and 3); and
- ii) pick-up coupling for data retrieval (overshot device).

Close et al is representative of modern borehole logging of pressure, and downhole data storage. Arriens et al shows recording the data uphole prior art to transmission to the earth's surface.

In addition, applicant has agreed that downhole data logging and storage are known in the prior art as is inductive coupling to a retrieval tool. The problem of shut-in valve blockage is set forth as conventional (amendment, page 4).

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Secondly, under Deere, the difference between this prior art and the pending claims lies in the combination of acoustic uphole data transmission over a section of a borehole tube with recording of data at the acoustic receiver prior to pick-up tool transmission.

Third, under Deere, one skilled in this art generally has a graduate degree in geophysics and over seven (7) years of experience. One need only to look at the articles in any issue of Geophysics and Geophysical Prospecting, the leading journals in this field, to realize the technical complexity of this field and the amount of graduate school study and field experience necessary to be considered skilled in this art.

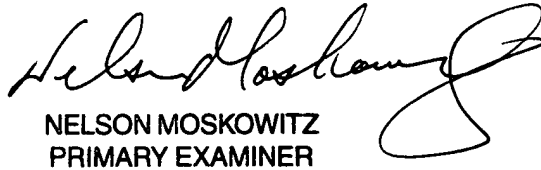
To date no evidence of secondary consideration (objective evidence) has been presented.

Therefore, as the prior art shows the uphole recordation of the received pressure data to be conventional, as is the sonic signal transmission along the pipe, the combination would have been obviousness to one skilled in this art.

4. Applicant's arguments have been considered and are not convincing. First of all, the references must be considered as an ordinary skilled artisan would consider them. See In re Jacoby, 209 F. 2nd 513, 135 USPQ 317, 319 (CCPA 1962) (obviousness question cannot be approached on basis that skilled artisans would only know what they read in the references; such artisans must be presumed to know something about the art apart from what the references disclose); In re Bozek, 416 F. 2nd 1385, 1390, 163 USPQ 545, 549 (CCPA 1969) (conclusion of obviousness may be made "from common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion on a particular reference").

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The assertion that acoustic data transmission between downhole and the surface was never successfully implemented in practice is not cogent. First of all, while noise is problematic in LWD and MWD systems with lengthy drill piping, in situations where the measuring does not take place during drilling the noise problem is clearly not substantial. In addition, the present claims do not recite MWD or LWD operation, nor do they recite the length of tube over which communication is consummated.


NELSON MOSKOWITZ
PRIMARY EXAMINER

Moskowitz/cw
June 1, 2000